

# Environmental Control Module

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Your Comprehensive  
Equipment Source





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## Safety Notice

A thorough familiarity with all operating guidelines is essential to safe operation of the product. Failure to observe safety precautions could result in poor performance, damage to the system or other property, or serious bodily injury or death.

The following symbols are intended to call your attention to two levels of hazard involved in operation:



CAUTION

Cautions are used when failure to observe instructions could result in significant damage to equipment.



WARNING

Warnings are used when failure to observe instructions or precautions could result in injury or death.

The information presented here is subject to change without notice.

## 1.0 Introduction

This manual provides information on installing and operating your Terra Universal Environmental Control Module (ECM).

By studying this document carefully, you can be assured of a long, efficient service life from the unit. Be sure to also read carefully any manuals for additional equipment you have incorporated into your system, such as TUI's ionizing equipment.



**CAUTION:** This QuickStart provides general information regarding setup and maintenance of an ECM system. Each system is designed for a particular application, whether positive pressure filtration of particles or negative pressure filtration of chemical vapors. These applications are not interchangeable, and an ECM should not be operated in an application for which it was not designed. Refer to Terra's Product Catalog for detailed application information regarding your ECM system.



Vertical Laminar Flow



Horizontal Laminar Flow



Vertical Exhaust Fume Purification



Horizontal Exhaust Fume Purification

## 2.0 Description

Terra's Environmental Control Module (ECM) consists of multiple filter/blower modules mounted to a hood, which can be specified out of acrylic, static-dissipative PVC, tempered glass, polypropylene, or stainless steel.

Each filter blower module houses one or more impeller blowers and a filter or combination of filters.



## In positive-pressure (laminar flow) applications:

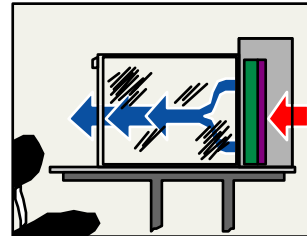
The ECM incorporates a single variable-speed impeller blower with speed control, which directs a flow of air through a HEPA or ULPA filter.

## In negative-pressure (exhaust) applications —

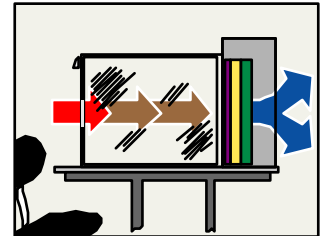
The ECM incorporates one impeller blower for each filter pack. Multiple impellers provide the greater air flow necessary to maintain adequate exhaust rate (at least 100 fpm) with activated charcoal filters, which create greater static pressure than HEPA or ULPA particle filters. All impellers are operated from a single power switch to ensure uniform operation. For safety reasons, this application does not use variable speed controls; impellers operate at high RPM when power is applied.

Charcoal filters used in ductless exhaust applications remove a wide range of organic vapors and odors to indoor exhaust release. You can find more information about what these filters absorb [on our website](#).

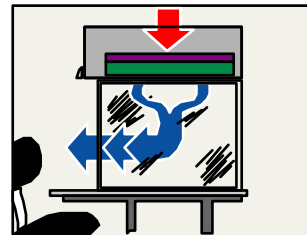
Terra's bonded charcoal filters eliminate voids and sloughing, providing uniform filtration with minimal dust. Prefilters are included. For cleanroom applications, a final filter (HEPA or ULPA) can be specified for each charcoal filter.



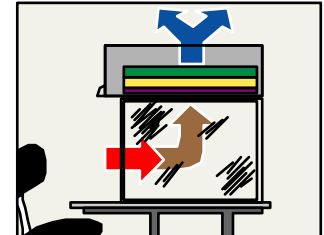
Horizontal Laminar-Flow Hood



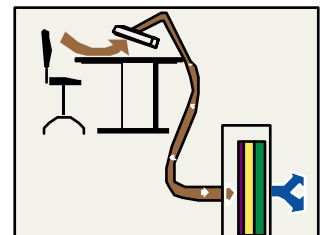
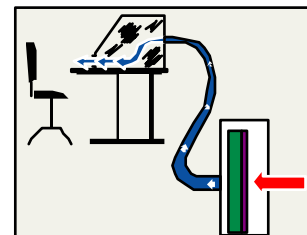
Horizontal Ductless Exhaust Hood



Vertical Laminar-Flow Hood



Vertical Ductless Exhaust Hood



To a Remote Enclosure\*

\* Note: For operation with 2" hosing, you must install a 2" vinyl cuff (TUI Cat. No. 9001-24) on one end of the hose for a snug connection to the 2" flange on the rear panel of the blower/filter housing.



## 3.0 Installation

All units are shipped with filters installed. To operate the system,

1. Place it on a flat, level work station and connect the power cord on one of the blower modules to an appropriate power outlet (either 110VAC/60Hz or 220VAC, 50 Hz).

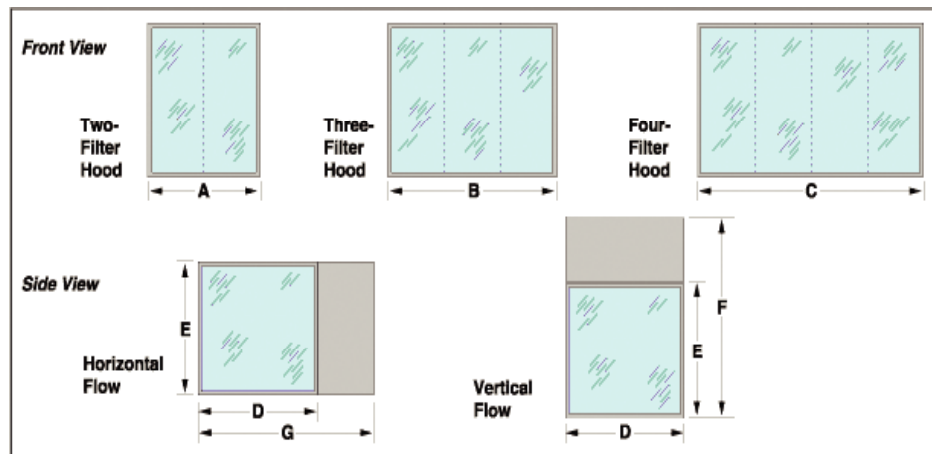
**Back (vertical flow)/  
Top (horizontal flow)**  
Remove retaining  
screws completely



**Front (vertical flow)/  
Bottom (horizontal  
flow)**

**Replacing Filters**  
Vertical flow model, shown with blower panel  
removed.

2. Laminar Flow Units: Place the speed control on the highest setting and turn the switch ON. To reduce the air velocity, adjust the speed control downward.



Hood Type – All dimensions are nominal						
Two Filter	Three Filter	Four Filter	ALL			
A	B	C	D	E	F	G
28"	42"	56"	30"	30.25"	44.25"	43.5"

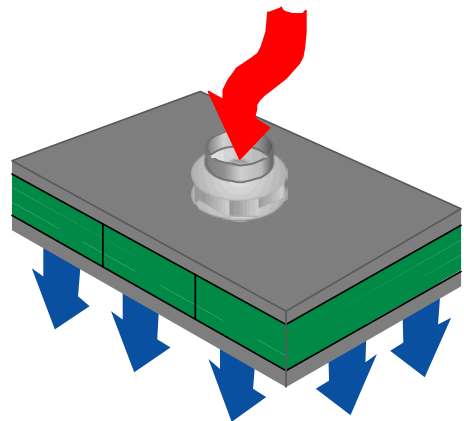
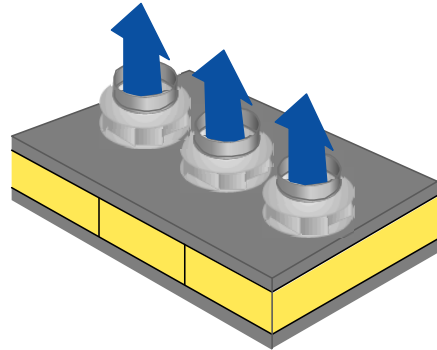
**Note:** For optimal operation, an anemometer (Terra's AirGard or similar device) should be used to monitor the air velocity. A properly adjusted system should provide an air velocity of between 90 and 110 linear feet per second, which is uniform across the entire filter face.



## 4.0 Filter Replacement

**Tools needed:** Phillips head style screwdriver

1. Using the screwdriver, remove the 8/32 screws from the blower panel of the filter module. This is the rear panel in horizontal flow modules or top panel in vertical flow models.
2. Slowly remove the blower panel. The blowers are attached to the back panel; take care not to loosen the wiring harness.
3. Filters are held snugly against the inside face of the polypropylene housing by tension brackets. Loosen the wing nuts that hold these brackets in place in order to remove the HEPA, ULPA or purification filter.
4. Install replacement filter(s). The filter should be positioned so that the arrows on the filter housing point in the direction of the airflow. Make sure that the gasket on the leading edge filter seals against the inside lip of the filter housing; this seal is critical to the performance of the filter module.
5. Press the tension brackets against the filter to hold it firmly in place, and then retighten wing nuts.
6. Replace the back panel by reinstalling the screws.



## 5.0 Specifications

**Blower:** 1200 CFM (rated at 0" static pressure) 1675 RPM variable-speed impeller; 115VAC/60Hz; consumes 115W; 1.0 running amps (230VAC/50Hz models also available); housed in white polypropylene housing with plenum chamber to optimize uniform air flow. Note: 1200CFM blowers used in ductless exhaust applications do not include speed controls.

**Filters:** HEPA: 99.99% efficient @ 0.3µm particles  
ULPA: 99.999% efficient @ 0.12µm particles

**Exhaust Purification:** Activated charcoal filter rated effective with wide range of organic fumes.

**Dimensions**

**Hood:** See dimensional illustrations

**Blower Housing:** 13.5"D x 32.25"H x 28", 42", or 56"W

**Blower Performance:** Testing performed on 42"W models

**Exhaust Purification**

**Air Flow**

**As Shown:**

600 CFM exhaust flow  
(200 CFM per filter pack)

**With HEPA final filters #1621-02:**

525 CM exhaust flow  
(175 CFM per filter pack)



*Quick-Start Operating Guide*

# Environmental Control Module

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3 1200 CFM Impellers  
3 Charcoal Filters #1716-00

## **Laminar Flow**

### **Air Speed**

Max.>150 ft./minute  
(adjustable to 90 ft./minute)

### **Air Flow**

800 CFM  
1 1200 CFM Impeller  
3 HEPA Filters #1681-02





## 6.0 Warranty

**Products Manufactured by Terra:** Terra Universal, Inc., warrants products that it manufactures to be free from defects for a period of 12 months for parts and 90 days for labor, commencing from the date of shipment. Terra's sole responsibility is to repair or replace, at its option, any part of the product that proves defective or malfunctioning during this time limit. In some cases, components incorporated in Terra Universal products are covered by additional warranties from component manufacturers; obtain specific information from Terra sales representatives. This warranty is void if the equipment is abused or modified by the customer, is operated outside Terra's operating instructions or specifications, or is used in any application other than that for which it is specified. This warranty does not include routine maintenance or service procedures, breakage of quartz baths after 60 days, shipping damage, nor damage from misuse, intentional or unintentional abuse, neglect, natural disasters, or acts of God.

**Products Manufactured by Others:** Terra Universal, Inc., warrants that, to the best of its ability, Terra's representations of products that are manufactured by others reflect the manufacturer's representations, subject to change without notice. Sole warranty for these products is the original manufacturer's warranty that is passed forward to the purchaser and constitutes the customer's sole remedy for these products. Detailed warranties for distributed products are available through Terra sales representatives.

**Freight Shortage or Damage:** Upon receipt of any equipment from Terra Universal, Inc., customer shall immediately unpack and inspect for damage or shortage. The customer shall not accept a damaged package or a short shipment until the carrier makes a "damage or shortage" notation on both the carrier's and customer's copy of the freight bill or delivery receipt. Service title passes when the shipment is loaded, so customer is responsible for filing and collecting a freight claim. Any replacement products must be ordered and paid for separately. For Terra's "Policy and Procedures for Returning Goods," see Terra's Internet site: [www.TerraUniversal.com](http://www.TerraUniversal.com).

Generally, customers can improve the chance of collecting on a freight claim by following these procedures: 1) formally requesting that the carrier inspect the shipment immediately upon suspecting damage or shortage to verify condition; 2) notifying the carrier upon discovery of concealed damage and requesting an inspection within 15 days of receipt, both in person or phone and following up via mail; 3) keeping the shipment as intact as possible, including retaining original packaging materials and keeping the product as close to the original receiving location as possible; 4) holding salvage for disposition by the carrier.

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**Warranty Returns:** All warranty returns must be authorized in advance by Terra Universal and approved under an RMA. Unless approved in advance for good reason, all returns must be in original condition, including all manuals, and must be packaged in original packaging materials. All returned goods are to be shipped to Terra Universal, freight prepaid at customer's expense. See Terra's "Policy and Procedure for Returned Goods."

*Thank you for ordering from  
Terra Universal!*